

Ocean gales and storms, September, 1926—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN—Continued													
Della Terzo, Ital. S. S.	Dakar	Norfolk	29 49N.	46 03W.	21	3p., 22	23	28.50	S	S., 10	N., 12	S.-N.	
Norwegian, Br. S. S.	Havre	do	41 46N.	56 00W.	21	1a., 22	22	28.81	SE	Calm	NW	SE-NW.	
Hardenberg, Du. S. S.	Rotterdam	Montreal	53 32N.	45 39W.	23	—, 24	25	29.37	SE	S., 8	SW	SE-S.	
Natica, Br. S. S.	Blexen	Curacao	36 17N.	35 25W.	25	6a., 25	25	29.10	E	NNE., 12	N	NNE., 12	
Baron Sempill, Br. S. S.	London	New York	49 20N.	32 00W.	26	4a., 26	26	29.83	N	N., 9	NE	N., 10	
Conte Rosso, Ital. S. S.	New York	Naples	38 23N.	28 00W.	25	5p., 26	26	29.41	NNE	NNE., 9	SW	NNE., 9	
Sinala, Fr. S. S.	Lisbon	Providence	38 25N.	30 25W.	26	7p., 27	28	28.94	E	NNW., 10	NNE	N., 10	E.-N.-NW.-N.-NNE
Clontarf, Am. S. S.	New York	Morocco	40 33N.	34 13W.	28	4p., 28	29	29.75	NNE	NNE., 8	NE	NNE., 9	NNE.-N.
NORTH PACIFIC OCEAN													
Steel Ranger, Am. S. S.	Yokohama	Vancouver	49 00N.	175 50W.	Aug. 30	2a., 31st	Sep. 1	29.36	E	N., 9	N	N., 9	NE.-N.
Anomia, Br. S. S.	San Pedro	Yokohama	35 00N.	157 00E.	Sep. 1	2a., 2	2	28.65	SSE	SSW., 12	NNW	SSW., 12	
Indian Arrow, Am. S. S.	San Francisco	Shanghai	32 50N.	157 50E.	1	11p., 1	2	29.79	S	S., 8	W	SW., 9	S.-SW.-W.
Maunawili, Am. S. S.	Honolulu	San Francisco	36 20N.	127 00W.	1	4p., 3	3	29.74	NNE	NNW., 5	NNW	N., 8	N.-NNW.
West Henshaw, Am. S. S.	Slain, P. I.	do	38 20N.	170 30E.	2	8p., 2	3	29.68	S	ESE., 8	SE	ESE., 8	S.-E.
Tabchee, Br. S. S.	Tsurumi	do	43 40N.	179 37E.	2	Noon, 3	3	29.75	SSE	SSE., 8	S	SSE., 8	Steady.
Harold Dollar, Br. S. S.	Columbia River	Yokohama	44 25N.	159 20E.	2	4p., 2	3	29.32	NW	NW., 5	NW	NW., 11	Steady.
Do.	do	do	39 36N.	149 00E.	4	4a., 4	5	29.46	S	S., 6	NW	NW., 11	S.-W.-NW.
Africa Maru, Jap. S. S.	Yokohama	Victoria	49 11N.	175 07W.	2	10p., 2	4	29.50	S	S., 9	S	S., 9	Steady.
City of Vancouver, Br. S. S.	Grays Harbor	Yokohama	50 01N.	170 28E.	3	Noon, 3	4	28.33	ESE	NE., 10	NW	NE., 10	
Juyo Maru, Jap. S. S.	Everett	do	50 22N.	179 41W.	2	10p., 3	5	29.00	S	S., 10	N	S., 10	9 points.
Melyo Maru, Jap. S. S.	Muroran	Seattle	43 21N.	156 15E.	6	2a., 6	7	29.17	NW	NW., 6	NNW	NNW., 8	
Juyo Maru, Jap. S. S.	Everett	Yokohama	43 22N.	151 50E.	10	3a., 11	11	29.82	SSE	ESE., 4	NE	E., 11	2 points.
Protestlaus, Br. S. S.	Yokohama	Victoria	42 45N.	155 47E.	11	4p., 11	12	29.48	E	ENE., 10	NE	E., 10	E.-ENE.
Akibasan Maru, Jap. S. S.	do	San Francisco	47 48N.	175 15W.	12	8a., 13	15	29.91	SE	SE., 5	SSE	SSE., 8	SE.-SSE.
Koyu Maru, Jap. S. S.	Grays Harbor	Yokohama	50 10N.	172 30E.	12	1a., 15	16	29.21	SE	NNE., 7	W	NW., 9	SE.-E.-NNE.
Kurohime Maru, Jap. S. S.	Yezo	Farallon Isl.	48 50N.	174 43E.	13	5p., 14	15	29.06	ESE	E., 3	SSE	NE., 9	E.-SE.
Claudeus, Am. S. S.	Balboa	San Diego	17 11N.	101 40W.	14	4p., 14	14	29.74	NW	NW., 4	SSE	NW., 9	Variable.
Pres. Jefferson, Am. S. S.	Yokohama	Seattle	48 00N.	174 00E.	14	4a., 15	15	28.91	NNW	ENE., 4	SSE	NNW., 9	10 points.
Pres. Monroe, Am. S. S.	New York	San Francisco	18 05N.	103 40W.	15	1a., 16	16	29.72	NW	W., 8	SW	W., 8	
Steel Navigator, Am. S. S.	Balboa	Honolulu	15 59N.	109 35W.	16	2p., 16	16	29.64	NW	WSW., 8	WNW	WSW., 9	WSW.-W.
West Kader, Am. S. S.	Yokohama	Portland	39 52N.	148 50E.	17	2p., 18	18	29.53	SE	E., 7	E	E., 8	E.-NE.
West Chopaka, Am. S. S.	Slain, P. I.	San Francisco	42 51N.	172 04E.	23	Noon, 23	24	29.70	NW	W., 4	NW	NW., 8	Steady.
Benalder, Br. S. S.	Astoria	Panama	21 07N.	108 47W.	24	8p., 24	25	29.66	ENE	E., 7	SE	SE., 10	E.-ESE.
Havre Maru, Jap. S. S.	Muroran	Coos Bay	40 20N.	161 00E.	25	7a., 26	26	29.57	S	S., 10	S	S., 10	Steady.
El Oso, Br. S. S.	San Pedro	Yokohama	34 00N.	176 44E.	25	Midt., 25	26	29.55	S	WSW., 5	N	N., 9	SW.-NW.
Toco, Br. S. S.	Antofagasta	San Pedro	24 40N.	112 43W.	26	—, 26	26	29.56	SSE	S., 8	SW	S., 8	
West Kader, Am. S. S.	Yokohama	Portland	49 50N.	143 45W.	28	8p., 28	28	29.49	SE	SSW., 7	SSW	SE., 9	
Pres. Grant, Am. S. S.	do	Seattle	50 01N.	157 59W.	27	—, 28	28	29.34	SE	SSW., 6	SSE	SE., 9	6 points.
Ryujin Maru, Jap. S. S.	Otaru	Portland	52 30N.	154 00W.	28	1p., 28	29	29.22	SE	SW., 7	W	ESE., 10	SE.-WSW.
Oriondo Maru, Jap. S. S.	Karatsu	Astoria	49 51N.	162 48W.	27	Noon, 28	30	29.26	SE	W., 6	W	W., 8	
Kureha Maru, Jap. S. S.	Milke	do	50 13N.	148 30W.	27	3a., 30	30	29.23	SE	WSW., 7	WNW	SE., 8	WSW.-WNW
Paris Maru, Jap. S. S.	Yokohama	Seattle	50 02N.	158 15W.	29	8p., 29	30	29.28	SSE	W., 8	W	W., 8	
INDIAN OCEAN													
Weirbank, Br. S. S.	Penang	Suez	13 32N.	53 18E.	Sept. 7	1p., 8	Sep. 8	29.78	SW	S., 6	S	SSW., 8	SSW.-S.
SOUTH PACIFIC OCEAN													
West Nilus, Am. S. S.	San Francisco	Buenos Aires	43 06S.	82 44W.	Sept. 9	6p., 10	Sep. 10	29.43	S	S., 7	SSE	S., 8	
Makura, Br. S. S.	Wellington	Rarotonga	35 32S.	176 11W.	14	9a., 15	15	29.33	NW	N.	W	N., 11	N.-NW.
Tamaha, Br. S. S.	Port San Luis	Wellington	39 00S.	178 45E.	16	4p., 16	18	29.18	NW	WNW., 8	W	SW., 9	WNW.-SSW.-W.

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NORTH PACIFIC OCEAN

By WILLIS E. HURD

The approach of autumn was well illustrated by the pressure averages on the weather map of the North Pacific for September. West of the peninsula of Alaska the Aleutian Low was now well established, although shallower than the normal. The greatest abnormality in this region was at Kodiak, where the pressure was 30.01 inches, while the average is only 29.70, or the same as that at St. Paul. Several cyclones, or oscillations of the same low, were blocked in upper latitudes in their forward movements by a persistent HIGH over the Gulf of Alaska between the 3d and the 26th, for it was not until the latter date that a Low succeeded in reaching as far east as Juneau. The way now being clear, another cyclone from the western Aleutians came rapidly through, so that at the close of the month a great depression overlay most of the ocean north of the 40th parallel.

The North Pacific HIGH covered its usual position throughout the month and, in general, for most of Sep-

tember extended from the headwaters of the Gulf of Alaska southward and southwestward to Midway Island.

The following table shows the barometric conditions at selected stations:

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level at indicated hours, North Pacific Ocean, September, 1926

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
Dutch Harbor 1.4	Inches 29.81	Inch +0.05	Inches 30.36	13th	Inches 29.06	29th
St. Paul 1.4	29.83	+0.13	30.44	12th	29.26	30th
Kodiak 1	30.01	+0.31	30.28	5th	29.26	30th
Midway Island 1.4	30.00	-0.07	30.04	2d	29.84	14th
Honolulu 2	29.98	-0.02	30.08	1st	29.86	18th
Juneau 1	30.07	+0.15	30.47	24th	29.46	30th
Tatoosh Island 2.3	29.96	-0.03	30.50	24th	29.52	15th
San Francisco 1.4	29.91	-0.03	30.07	20th	29.74	1st
San Diego 1.3	29.86	-0.02	30.00	12th	29.75	23d.

1 P. m. observations only.

2 A. m. and p. m. observations.

3 Corrected to 24-hour mean.

4 One day missing.

5 Two days missing.

6 And other dates.

In the dearth of cyclones in upper and middle latitudes east of longitude 170° W., very few gales occurred there except during the last few days of the month, and most of those of the 27th to 30th did not exceed 9 in force.

West of the 170th meridian, on the contrary, the period of greatest quiet was that of the 3d decade, while the periods of greatest activity were those of the 1st to the 4th and the 10th to the 15th. On the 3d and 4th gales of varying force up to 11 swept considerable areas along the steamship routes between Japan and 175° W., and on the 11th forces of 10 to 11, with an accompaniment of violent rains qualls, were experienced by vessels between 40° and 45° N., 150° and 160° E.

On the 1st and 2d a severe storm of probable tropical origin was encountered by the British steamer *Anomia*, San Pedro to Yokohama, while near 35° N., 157° E. The gales began from south-southeast at about 9 p. m. of the 1st, pressure 29.21. At 2 a. m. of the 2d the pressure had dropped to its lowest reading, 28.65, and the wind had attained hurricane force from south-southwest. The *Anomia* had been compelled to heave to an hour earlier, and so remained until noon, when the wind had decreased to west-northwest, 5.

A report by the Rev. José Coronas, chief of the Meteorological division of the Philippine Weather Bureau, upon other September typhoons appears elsewhere in this issue of the REVIEW.

Two apparently moderate disturbances of cyclonic character appeared off the coast of Mexico. The first caused fresh to strong gales at sea near Acapulco on the 14th, and south of Manzanillo on the 16th. A west-southwest gale, force 9, was also reported on the 16th by the American steamer *Steel Navigator* while near 16° N., 109½° W., lowest observed pressure 29.64 inches.

A second series of gales swept the coast between Manzanillo and Mazatlan on the 24th and 25th. The depression causing them seems to have moved northward, since on the 26th gales occurred off the lower part of the Peninsula of California. The highest wind force noted was 10 from southeast, by the British steamer *Benalder*, near 21° N., 108¾° W. The lowest observed pressure was 29.56, read on board the British steamer *Toco* on the 26th, in 24° 40' N., 112° 43' W. Heavy rains fell during the course of these disturbances.

At Honolulu the total rainfall was 0.70 inch, or 0.58 less than the normal. The prevailing wind continued from the east. The average hourly wind velocity was 8.8 miles, and the maximum velocity was 26 miles from the east on the 24th. Temperatures were close to normal.

Fog decreased greatly in middle and northern latitudes since August, but was observed on scattered dates all along the upper steamship routes, being met with most frequently, on four to six days in the month, over small areas off the central California coast, to the southeast of Dutch Harbor and east of northern Japan.

TYPHOONS AND DEPRESSIONS

FIVE TYPHOONS OVER THE FAR EAST IN SEPTEMBER, 1926

By REV. JOSÉ CORONAS, S. J.

[Weather Bureau, Manila, P. I.]

Aside from two other distant Pacific depressions or typhoons whose tracks are not so definite, we had five well-developed typhoons over the Far East during the last month of September—two over Japan, two over the Babuyan Islands in the Philippines, and one over the China Sea and Indochina.

Two Japan typhoons.—The first of these seems to have developed on September 1 and 2 over the Pacific between the Loochoo and the Bonin Islands. At 6 a. m. of September 3 the center was shown by our weather maps to be east of Oshima in about 133° 15' longitude E., and 28° 40' latitude N. moving northward. On the 4th the typhoon traversed Japan, moving northeastward, the position of the center being at 6 a. m. of the 4th and 5th:

September 4, 6 a. m., 134° 30' longitude E., 34° 15' latitude N.

September 5, 6 a. m., 148° longitude E., 45° latitude N.

The second Japan typhoon was probably formed on the 11th to 12th about 250 miles east of northern Luzon. It moved Northwest on the 13th, but recurved to north and northeast on the 14th near to the east of Bashi Channel. On the 15th and 16th the typhoon traversed the Loocho Islands moving northeastward, and on the 17th it traversed Japan, keeping the same direction.

The position of the center at 6 a. m. of the 14th to 18th was as follows:

September 14, 6 a. m., 123° 20' longitude E., 21° 05' latitude N.

September 15, 6 a. m., 123° 30' longitude E., 23° 10' latitude N.

September 16, 6 a. m., 125° 50' longitude E., 25° latitude N.

September 17, 6 a. m., 132° 15' longitude E., 30° 40' latitude N.

September 18, 6 a. m., 139° longitude E., 38° latitude N.

Two Philippine typhoons over the Babuyan Islands.—The first of these typhoons appeared in our weather maps on the 6th near 130° longitude E., between 13° and 14° latitude N. It moved west-northwest on the 6th, north-west on the 7th and north-northwest in the morning of the 8th; it inclined again to west-northwest at noon of the 8th and traversed the Babuyan Islands in the afternoon of the same day; finally, it inclined to north-northwest and north by west on the 9th, traversing the southern part of Formosa Channel on the 10th, and entering China near Amoy during the night of the 10th to 11th.

The steamers *Mayebashi Maru* and *Ethan Allen* were involved in this typhoon, the former near Balintang Channel, with a barometric minimum 746.49 millimeters (29.39 inches) at 4 p. m. of the 9th, and winds from south by west, force 7, and the latter near the southwestern coast of Formosa with the same barometric minimum at 2 a. m. of the 10th, and winds from southeast, force 6.

The position of the center at 6 a. m. of the 8th, 9th, and 10th was as follows:

September 8, 6 a. m., 123° 50' longitude E., 17° 30' latitude N.

September 9, 6 a. m., 119° 30' longitude E., 20° 30' latitude N.

September 10, 6 a. m., 118° 35' longitude E., 21° 45' latitude E.

The second Philippine typhoon was shown by our weather maps at 6 a. m. of the 25th, east of Luzon in about 128° longitude E., between 15° and 16° latitude N. It moved rapidly northwest by west and west-northwest on the 25th and 26th, the center traversing the Babuyan Islands in the morning of the 26th not far from the northern coast of Luzon and passing to the south of Hongkong in the morning of the 27th.¹ The

¹ According to press reports, the typhoon that entered south China on the 27th caused the loss of 2,000 lives and 130 fishing junks in the waters around the Portuguese colony of Macao.—W. E. H.